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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,784	12/07/2001	Cha Deok Dong	054216-5006	7960

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EXAMINER

FOONG, SUK SAN

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 04/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding:

Office Action Summary

Application No.

10/004,784

Applicant(s)

DONG ET AL.

Examiner

Suk-San Foong

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. There is insufficient guidance to one ordinary skilled in the art to perform the method of claim 1, lines 10-11. It appears that nitrogen-containing film would be oxidized on both the upper and lower surface and the substrate surface would be oxidized to form oxide films above and below the nitrogen-containing layer in view of the disclosure of Hori, Section III (IEEE Transactions on Electron Devices).

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 2, 4-6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. ('052) in combination with Liu ('474) and Wolf as previously applied.

Chang et al., Liu and Wolf are relied on for the teachings discussed in the rejections of paragraph 10 as stated in the Office Action mailed on 11/7/02 and as follows.

The temperatures recited in claim 10 are either within the disclosed ranges or would have been a matter of routine optimization within the teachings of Chang et al. to achieve desired oxidation rates, nitrification rates and annealing rate in the absence of unexpected results. Note that the temperature ranges for nitrification and oxidation steps are 750° to 850°C. Alternatively, the claim is open to increasing and decreasing the temperature for the oxidation step, nitrification step and annealing step an amount that would expected to have an insubstantial effect on the disclosed process.

6. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. ('052) in combination with Liu ('474) and Wolf as applied to claims 1, 2, 4-6 and 10 above.

The rejection is maintained as stated in paragraph 11 of the Office Action mailed on 11/7/02.

7. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. ('052) in combination with Liu ('474) and Wolf as applied to claims 1, 2, 4-6 and 10 above, and further in view of Byun et al. (630).

The rejection is maintained as stated in paragraph 12 of the Office Action mailed on 11/7/02.

Response to Amendment

8. The amendment to claim 1, line 12 does not overcome the rejection because the issue is lack of enablement of an annealing process which would result in transfer of nitrogen-containing layer as recited as evidence by disclosure of Hori and Liu et al. in Col. 1.

Response to Arguments

9. Applicant argues that the combination does not include "the nitrogen-containing layer is transferred to a surface of the lower oxide film". However, the "annealing process" is disclosed on instant page 7, lines 3-10, to accomplish oxidation of the underlying silicon which is the same function disclosed to be obtained in the annealing step of Liu et al., Col. 1, lines 46-50.

Applicant does not provide argument that different conditions are employed in the annealing step, therefore, the same materials are treated in the same manner as in the instant invention during the annealing step of Liu et al. Therefore the recited results would be obtained. See 35 U.S.C. 112, first paragraph, above.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suk-San Foong whose telephone number is 703-305-0383. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 (7724, 3431, 3432).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

gr

April 16, 2003


George Fourson
Primary Examiner
Art Unit 2823